

REMARKS

Reconsideration of the application is requested.

As of the mailing of the current Office Action, claims 9-22 were pending in the subject application.

Applicant has amended claim 9 herein. Applicant represents and asserts that no new matter is added by any amendments herein.

Applicant notes that in view of MPEP 707.07 that requires the action to be complete as to all matters, Applicant proceeds under the understanding that the present claims are patentable once distinction is established over the cited prior art.

I. REJECTION UNDER 35 USC 103(a)

Claims 9-20 and 22-28 have been rejected in the current Office Action, on pages 3-5, items 5-11, as being unpatentable over the Child and Broecker references of record. It is noted that claims 23-28 were previously cancelled.

Applicant respectfully traverses this rejection.

Applicant notes that the subject application has claim 9 as the only independent claim.

Claim 9 requires, inter alia:

providing the feed gas mixture originating from a biomass gasification process, the feed gas mixture including carbon monoxide, hydrogen, water vapor, C₂ components and aromatic hydrocarbons the aromatic hydrocarbons being in the range of **0.5 to 10 vol %, wherein said aromatic hydrocarbons are present in an amount of at least 0.4 g/Nm³**, said feed gas further including benzene, naphthalene, toluene and C₈ at a concentration of about 15 g/Nm³.

bringing the feed gas mixture, without a pretreatment in an activated carbon filter, into contact with a fluidized bed catalyst having catalyst particles, having a catalytic active component including at least one of a metal, a metal compound or a mixture thereof under the conditions of:

an elevated temperature in the range of 250 to 500°C;
a feed gas pressure in the range of 0.8 to 70 bar;
a gas hourly space velocity of 1000 to 50000 h⁻¹; and
a mole ratio of H₂/CO in the initial gas mixture in the range of 0.25 to 5 when the feed gas is brought into contact with the fluidized bed catalyst.

The present invention requires C₂ components and aromatic hydrocarbons to be present in the range of 0.5 to 10 vol. %. Support for this amendment is found in the Rule 132 declaration of record. The invention also requires the presence of a feed gas mixture having benzene, naphthalene, toluene and C₈ at a concentration of about 15 g/Nm³.

Child and Broecker, when combined and read as a single instructive disclosure, is deficient for failing to teach or suggest the claimed invention.

The combined Child and Broecker disclosure is deficient for failing to teach or suggest C₂ components and the claimed feed gas mixture.

It is already of record in this case that Child discloses a methanation process where the raw gas is originating from coal or coke under very specific conditions with respect to the removal of carbon monoxide. The raw gas generated from coal does contain usually a significant amount of sulphur components but **does not** contain higher hydrocarbons, such as the claimed benzene, naphthalene, toluene and C8 and aromatic hydrocarbon of the present invention.

Combination of Child with Broecker, again, to form a single instructive disclosure, does not cure the deficiency because Broecker is directed to a system **completely free of C2!**

Broecker et al. has a two-stage process: Starting with the cracking of a feedstock that may comprise C2 components and aromatic hydrocarbons to receive a feed gas for the subsequent methanization process that is completely free of any C2 components and aromatic hydrocarbons and then the methanization step with this feed gas being completely free of C2 components and aromatic hydrocarbons (see for example

Broecker, column 9, lines 43 to 46, column 10, lines 24 to 26, lines 47 to 51). At these references, the feedstock for the methanation is completely free of C2 components.

In combination, at best, the combined disclosure of Child and Broeker teach a system

without C2 and without a feed gas of **benzene, naphthalene, toluene and C8**

because Child and Broeker combined teach that the feed gas delivered to the methanization step is completely free of C₂ components and aromatic hydrocarbons.

Broeker et al. only teaches the use of a feedstock for the steam cracking of hydrocarbons consisting in example 8 (column 11, lines 61 to 63) of 88% by volume of paraffins, 10 percent by volume of naphthenes with 6-membered rings and 2% by volume of aromatics.

This is contrary to the subject invention. In the subject invention, C₂ and aromatic hydrocarbons must be present in the composition of the feed gas used in the methanization step.

The Office Action, on page 3, item 4, re-alleges that the present claim would also read minor amounts of C₂ components and aromatic hydrocarbons including the ppb range. We traverse this argument with the fact that not only are the gas compositions of Broecker absolutely free of C₂ components and aromatic hydrocarbons because these components are removed entirely in the first cracking step, but also that the invention, as now claimed, requires a specific lower range (0.5 %) of C₂ and aromatic hydrocarbons that are significantly above the ppb amounts opined in the Office Action.

Because of the failure of the cited references combined into a single instructive disclosure to teach or suggest the claimed invention, Applicant respectfully asserts a

rejection under 35 USC 103(a) cannot be properly maintained. Applicant respectfully requests reconsideration and withdrawal of this rejection.

B. REJECTION OF CLAIM 21

The current Office Action, on page 7, items 17-18, has rejected claim 21 over the Child '000 and Broecker references discussed above and further in view of Child '113.

Applicant respectfully traverses this rejection.

As discussed above, Child '000 and Broecker references are deficient in their teaching. Claim 21 is dependent on independent claim 9. Combination of Child '000 and Broecker references with Child '113 fails to cure the deficiency discussed above in relation to claim 9.

The recitation of benzene and toluene, as cited in the Office Action does not provide the teaching or suggestion for independent claim 9 requiring, inter alia, 0.5 to 10 vol %, wherein said aromatic hydrocarbons are present in an amount of at least 0.4 g/Nm³, said feed gas further including benzene, naphthalene, toluene and C8 at a concentration of about 15 g/Nm³.

Thus, Applicant respectfully asserts that the combined disclosure of Child '000, Broecker, and Child '113, into a single instructive disclosure still remains deficient for failing to teach or suggest the claimed invention. Because of the failure of the cited

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references to teach or suggest the claimed invention, Applicant respectfully asserts a rejection under 35 USC 103(a) cannot be properly maintained. Applicant respectfully requests reconsideration and withdrawal of this rejection.

In view of the foregoing, reconsideration and allowance of claims 9-22 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Petition for a one-month extension of time is herewith made. Enclosed is the fee in the amount of 150.00. Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to Deposit Account Number 12-1099 of Lerner Greenberg Stermer LLP.

Respectfully submitted,

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